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09/773,176	01/31/2001	Jung Ah Lee	4	6089

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EXAMINER

CHANG, EDITH M

ART UNIT PAPER NUMBER

2634

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/773,176

Applicant(s)

LEE, JUNG AH

Examiner

Edith M Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Jan 31 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (US 6233271) in view of Cleverly et al. (US 5426665).

Regarding **claims 1 & 5**, except specify *segmenting* the received signal, Jones et al. discloses a method of detecting and identifying a received signal (1604-1650 FIG.14 or 1704 FIG.15 is detecting and 1660-1662 FIG.14 or FIG.16 is identifying a received signal of a number of Walsh sequences; column 5 lines 50-60, column 7 lines 18-20 wherein M is a number of Walsh sequences) comprising:

a LONG CODE CORRELATE FIG.16 *correlating* each of the symbols in the received signal;

a FHT (Fast Hadamard Transform, column 11 lines 20-22, column 12 lines 30-34) to *produce signal identity* outputs (the outputs of 1802 FHT are signal identity outputs) indicating a degree of match between the received signal and each of a plurality of expected signal identities (the M Walsh sequences/long codes are signal identities);

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1806-1818 FIG.16 *providing frequency offset compensations* to each signal identity outputs (output of 1806 is the compensation) to produce frequency offset compensated signal identity outputs (outputs of 1818 FIG.16 are the compensated signal identity outputs);

*summing* (COMBIND FIG.16) corresponding signal identity outputs from frequency offset compensated signal identity outputs to form a plurality of summed signal identity outputs (inputs to decoder 1812 FIG.16 are plurality of summed signal identity outputs);

and step of *comparing* at least one summed signal identity output to a threshold to detect and identify the received signal (column 12 lines 45-50, wherein the maximum is found given the hard decision that the comparing is done. The hard decision contains the threshold to get the output signal).

However Cleverly et al. teaches *segmenting* the signal with an m-bit digital correlator defined by the serial combination of n similar smaller correlator stages, each of k-bits, where  $nk=m$ , and a Fast Fourier Transform (FFT) processor having an input ports fed from the n similar smaller correlators stages, one to each port (Abstract, Fig.5, column 3 lines 35-50). As Jones et al.'s correlator is for long code correlation and Cleverly et al. suggests that the m-bit correlator shown in Fig.5 is benefit using very long code (column 4 lines 15-20). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the m-bit correlator (29-34 Fig.5) taught by Cleverly et al. implemented in Jones et al.'s long code correlate of FIG.16. The suggestion/motivation for doing so would have been reduce in hardware requirements to provide an acceptable performance for a realistic frequency stability (column 3 lines 30-35 '665).

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Therefore, it would have been obvious to combine Cleverly et al.'s m-bit correlator with Jones et al.'s receiver (FIG. 16 '271) segmenting the received signal into at least a first and a second segment, correlating at least first and second segments, producing at least a first and a second set of signal identity outputs, providing frequency offset compensation to at least the first and second set of signal identity outputs; summing corresponding signal identity outputs from at least the first and second set of frequency offset compensated signal identity outputs, to obtain the invention as specified in the claims.

Regarding **claim 2**, Jones et al. discloses deinterleaving (DEINTERLV FIG. 16).

Regarding **claim 3**, Jones et al. discloses the representative symbol is the same for at least two symbols (W0 1814 FIG. 16 as the pilot symbol).

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (US 6233271) in view of Cleverly et al. (US 5426665) as applied to claim 1 above, and further in view of O'Sheat et al. (US 6654432 B1).

Regarding **claim 4**, Jones et al. does not explicitly specify the threshold is the same for each summed signal identity output, further O'Sheat et al. teaches the threshold is the same in the hard decision (column 15 lines 53-60). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the same threshold teaching taught by O'Sheat et al. in Jones et al.'s hard decision to decode the summed signal identity outputs. The combined/suggested receiver provides the definition of hard decision to decode the signal efficiently and straightly. The O'Sheat et al.'s teaching defines the hard decision used by Jones et al.

### *Double Patenting*

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 09/664,646 in view of Jones et al. (US 6233271 B1).

The claim 1 of copending Application No. 09/664,646 (now is in the process of allowing to be a patent, title: SEGMENTED ARCHITECTURE FOR MULTIPLE SEQUENCE DETECTION AND IDENTIFICATION IN FADING CHANNELS) discloses all the claim limitations except for providing frequency offset compensation, Jones et al. teaches providing the frequency offset compensation, 1664 FIG.14 or 1806-1818 FIG.16 provide frequency offset compensations to each signal identity outputs (output of 1806 is the compensation, the outputs of the FHT/Fast Hadamard Transform 1802 are signal identity outputs) to produce frequency offset compensated signal identity outputs (outputs of 1818 FIG.16 are the compensated signal identity outputs). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to

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have the frequency offset compensation in copending Application No. 09/664,646's method to estimate the channel to synchronize and minimize the noise of the received signal with the frequency offset compensation taught by Jones et al. The combined/suggested method with frequency/phase-offset compensation provides more accurate received signal in fading channels of the copending Application's wireless system.

The combined/suggested method is not patentably distinct from the conflict claim because the claim 1 of this application (the conflict claim) is broader than can be read on the combined/suggested method of claim 1 of the copending Application No. 09/664,646 with Jones et al.'s teaching.

This is a provisional obviousness-type double patenting rejection.

### *Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang  
July 1, 2004

  
**CHIEH M. FAN**  
**PRIMARY EXAMINER**